UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/714,246	11/16/2000	Marco Di Benedetto	112025-459	4062

			EXAMINER
24267 7590 04/07/2004			MOORE, IAN N

CESARI AND MCKENNA, LLP
88 BLACK FALCON AVENUE
BOSTON, MA 02210

ART UNIT	PAPER NUMBER
2661	7

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,9 and 12-14* is/are rejected.

7)☒ Claim(s) *6-8,10 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1 and 6 are objected to because of the following informalities and appropriate

correction is required.

- **Claim 1** recites, "...a **failure**..." in line 13. For consistency purpose, it is

  suggested to replace with "**a crash or failure**".

- **Claim 6** recites, "...a **failure**..." in line 4. For consistency and antecedent

  basis purposes, it is suggested to replace with "**the crash or failure**".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4,12, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by

Kicklighter (U.S. 6,005,841).

Regarding Claim 1, Kicklighter'841 discloses an intermediate network

device (see FIG. 1, a network switch 2) having at least one line card (see FIG. 1, Line

Cards IO 20) defining a plurality of ports for receiving and forwarding messages (see

FIG. 1, Line Cards IO receives and transmits the frames) and two or more supervisors

(see FIG. 1, Two Packet Engine Cards PRI 38), each supervisor configured to run one

or more applications to facilitate message handling by the network device (see col. 4,

lines 51-55; each PRI 38 card services/performs/runs/executes the packet switching

and synchronizing/management/supervisory events/tasks/applications), a method for

continuing operation of at least one application despite crashes or failures (see col. 9,

lines 31-34; a method of redundancy), the method comprising the steps of:

designating a first supervisor to be an active supervisor (see FIG. 1, PRI 38(A)

as active) and a second supervisor to be a standby supervisor (see FIG. 1, PRI 38(S)

as standby) for the network device; see col. 6, lines 35-36;

executing the at least one application at the active supervisor (see col. 4, lines

51-55; PRI 38(A) card services/performs/executes the packet switching and

synchronizing/management/supervisory events/tasks/applications);

holding the at least one application at the standby supervisor in a dormant

state (see col. 2, lines 13-20; note the PRI 38(S) stores/holds an identical operating

state/applications while it is placed in a standby/listening mode);

transmitting state information generated during execution of the at least one

application from the active supervisor to the standby supervisor (see col.2, lines 24-

34; note that the PRI 38(A) communicates/transmits the occurrences of any event to

PRI 38(S) while servicing/performing/executing the events/tasks/applications);

storing the state information at the standby supervisor (see FIG. 1, ROM 90,

RAM 92; see col. 2, lines 34-39; note that PRI 38(S) experiences the same

events/tasks/applications as PRI 38(A) by holding/storing them); and

in response to a failure at the active supervisor, carrying on execution of the at

least one application at the standby supervisor based upon at least some of the stored

state information (see col.2, lines 39-44; note that when PRI 38(A) fails, the PRI

38(S) continues the servicing/performing/executing the events/tasks/applications just

prior to failure according to the stored/hold events/tasks/applications.)

Regarding Claim 2, Kicklighter'841 discloses defining a synchronization

database having one or more synchronization records at the active supervisor (see

FIG. 1, ROM 90, RAM 92; see col. 2, lines 34-39 and col. 6, lines 10-19; note that

PRI 38(A) cards stores the configuration/switching/synchronizing/supervisory

records/data in the memory/database),

wherein the synchronization records store state information to be transmitted

to the standby supervisor (see FIG. 4; see col. 2, lines 34-39; col. 6, lines 49-66; note

that each stored configuration/switching/synchronizing/supervisory records/data in

the memory/database contains the events/tasks/state information, and they are being

download to PRI 38(S) by way of synchronizing).

Regarding Claim 3, Kicklighter'841 discloses updating one or more of the

synchronization records in response to an operating change at the at least one

application program (see col. 2, lines 24-34; note that the PRI 38(A)

communicates/notifies to PRI 38(S) regarding the updates/changes to any

configuration/switching/synchronizing/supervisory records/data when

updating/changing the operation of events/tasks/state/application (i.e. an operating

change due to a receipt of a message/data and call processes)).

Regarding Claim 4, Kicklighter'841 discloses sending the one or more

updated synchronization records to the standby supervisor (see col. 2, lines 24-35;

note that configuration/switching/synchronizing/supervisory records/data are sent to

the PRI 38(S).)

Regarding Claim 12, Kicklighter'841 discloses an intermediate network

device for use in a computer network (see FIG. 1, a network switch 2), the network

device comprising:

a first supervisor card (see FIG. 1, PRI 38(A)) in communicating relationship

(see FIG. 1, Switching Buses 30) with the one or more line cards (see FIG. 1, Line

Cards IO 20);

a second supervisor card (see FIG. 1, PRI 38(S) in communication relations

(see FIG. 1, Switching Buses 30) with the first supervisor card;

an application loaded onto the first and second supervisor cards (see col.5,

lines 65 to col.6, lines 18; note that the configuration/switching/

synchronizing/management/supervisory application is download/stored on each PRI

card), the application configured to define and manipulate a plurality of state

variables (see col. 4, lines 51-55; the configuration/switching/synchronizing/

management/supervisory application defines/performs/runs/executes/manipulates the

plurality of events/tasks/states occurrences (i.e. state variables)); and

a high availability entity disposed on both the first and second supervisor

cards, the high availability entities comprising:

an event mechanism for notifying a selected one of the first or second

supervisor cards of changes to the application's state variables (see col. 2, lines 24-34;

note that the PRI 38(A) has a mechanism to communicates/notifies to PRI 38(S)

regarding the updates/changes to any event/task/state occurrences); and

a database mechanism for storing the state variables at the first and second

supervisor cards (see FIG. 1, ROM 90, RAM 92; see col. 2, lines 34-39; note that

both PRI 38 cards experiences the same event/task/state occurrences by

holding/storing them in their respective memory/database mechanism).

Regarding Claim 13, Kicklighter'841 discloses the first supervisor card is

designated as an active supervisor card (see FIG. 1, PRI 38(A) as active) and the

second supervisor card is designated as a standby supervisor card (see FIG. 1, PRI

38(S) as standby) for the network device; see col. 6, lines 35-36;

the application is allowed to run on the active supervisor card but not on the

standby supervisor card (see col. 2, lines 13-20; note the PRI 38(S) is placed in a

standby/listening mode, thus, it does not execute any task/applications);

in response to a crash or failure of the active supervisor card, the application

carries on its execution from the standby supervisor card utilizing at least some of the

state variables stored at the database mechanism of the standby supervisor card (see

col. 2, lines 39-44; note that when PRI 38(A) fails, the PRI 38(S) continues the

servicing/performing/executing the events/tasks/applications just prior to failure

according to the stored/hold events/tasks/applications.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Kicklighter'841

in view of well-established teaching in art.

Regarding Claim 5, Kicklighter'841 discloses instructing the at least one line

card to change operating condition (see FIG. 2; PRI 38 card commands/instructs the

line card IO (via Nodal Switch or CPU/matrix 44) to update/change the switching/

management/supervisory events/tasks/conditions/states (i.e. change operating

condition); see col. 4, lines 51-67),

sending to the at least one line card with the instruction (see FIG. 1; the

commands/instructions must be send to the line card (i.e. command to

transmit/receive frames; see col. 4, lines 6-24); and

storing the at the at least one line card (see FIG. 1, Line Card IO 20; note that

each line card is the IO (Input and output) module, thus, it is clear that it must have a

memory/caching mechanism to store the command/instruction and performs

accordingly.)

Kicklighter'841 does not explicitly disclose generating a sequence number for

use in instructing.

However, the above-mentioned claimed limitations are taught by well-established teaching in art. In particular, well-established teaching in art teaches generating a sequence number for use in instructing. Note that it is well known in the art that when a command/instruction is generated by the processor/controller, it must have a sequence number, timer, time-stamp, or clock cycle that identifies a particular instruction/command along with the contents of the instruction/command so that the recipient can identify, store, and performs tasks synchronously. In particular, a sequence number with the command/instruction is sent to Kicklighter'841's line card IO (via Nodal Switch or CPU/matrix 44). Moreover, Kicklighter'841's line card IO can store/queue the sequence number with the command/instruction to execute/perform accordingly.

In view of this, having the system of Kicklighter'841 and then given the teaching of well established teaching in art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Kicklighter'841, by providing sequencing mechanism of utilizing the sequence number to identify the command/instruction, as taught by well established teaching in the art. The motivation to combine is to obtain the advantages/benefits taught by well established teaching in the art that such modification would increase the recipient capability to identify, store, and performs commanded/instructed tasks synchronously.

Regarding Claim 9, Kicklighter'841 discloses updating/synchronizing the state information between the active and standby supervisors during the system

initialization and periodically when any change in event occurs as disclosed above in

claim 1. In particular, Kicklighter'841 discloses determining the validity of the state

information stored at the supervisor (see col. 5, lines 59-67; note that the validity of

configuration state information stored at PRI 38 is determined by utilizing QUERY

BOARD INFORMATION message); and

performing the at least one application from utilizing state information

determined to be valid in its execution (see col. 5, lines 59 to col. 6, lines 5;

performing the download process after determining that QUERY BOARD

INFORMATION ACKNOWLEDGEMENT message is received and there is no or

insufficient configuration information in PRI 38 (i.e. the state information determined

to be <u>valid</u> in its execution)).

Kicklighter'841 does not explicitly disclose determining the validity of the

state information stored at the standby supervisor following a crash or failure of the

active supervisor; and blocking the at least one application from utilizing state

information determined to be invalid in its execution.

However, the above-mentioned claimed limitations are taught by well-

established teaching in art. In particular, well-established teaching in art teaches

determining the validity of the state information stored at the standby supervisor

following a crash or failure of the active supervisor (note that Kicklighter'841 teaches

validating the state information stored during the system initialization and

periodically every time there is a state/event change. Thus, it is obvious that one

must certainly validate the stored state/event information at the PRI 38 (S) after PRI

38(A) fails to ensure the consistency again);

blocking the at least one application from utilizing state information

determined to be invalid in its execution (note that Kicklighter'841 teaches

performing the executing tasks after determining that the state is valid to process.

Thus, it is obvious that one must block/stop the executing/performing

application/events after determining that the state is invalid after the switchover.)

In view of this, having the system of Kicklighter'841 and then given the

teaching of well established teaching in art, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to modify the system of

Kicklighter'841, by providing a mechanism to validate the state information and

block/stop processing/executing of any invalid information after a switchover, as

taught by well established teaching in the art. The motivation to combine is to obtain

the advantages/benefits taught by well-established teaching in the art that such

modification would increase reliability and minimize the inconsistent state

information after switchover.

Regarding Claim 14, Kicklighter'841 discloses at least one line card (see

FIG. 1, Line Cards IO 20) defining a plurality of ports for forwarding messages (see

FIG. 1, Line Cards IO receives and transmits the frames) across the computer

network (see col. 2, lines 5-7; note that telecommunications system/network utilizes

computing devices and their functionality, thus, it is the computer network), the at

least one line card in communicating relationship with the first and second supervisor

cards and configured to receive and state information from the application (see FIG.

1, Line cards communicate with PRI 38(A) and PRI(B) via buses and via Nodal

Switch or CPU/matrix 44), wherein the high availability entities at the first and

second supervisor cards further comprise:

the state variables stored at the first and second supervisor cards are consistent

with the port state information maintained at the at least one line card (see FIG. 2;

PRI 38 card commands/instructs the line card IO (via Nodal Switch or CPU/matrix

44) to update/change the switching/ management/supervisory

events/tasks/conditions/states; see col. 4, lines 51-67. Each line card is the IO (Input

and output) module, and it must have a memory/caching mechanism to maintain/store

the command/instruction of the state information of each port. Thus, it is clear that

plurality of events/tasks/states occurrences (i.e. state variables) in both PRI 38 cards

are consistent with each line card's call processing or framing states/tasks information

(i.e. port states).)

Kicklighter'841 does not explicitly disclose a sequence mechanism.

However, the above-mentioned claimed limitations are taught by well-

established teaching in art. In particular, well-established teaching in art teaches a

sequence mechanism. Note that it is well known in the art that when a

command/instruction is generated by the processor/controller, it must have a

sequence number, timer, time-stamp, or clock cycle that identifies a particular

instruction/command along with the contents of the instruction/command so that the

recipient can identify, store, and performs tasks synchronously. In particular, a

sequence number with the command/instruction is sent to Kicklighter'841's line card

IO (via Nodal Switch or CPU/matrix 44). Moreover, Kicklighter'841's line card IO

can store/queue the sequence number with the command/instruction to execute/perform synchronously.

In view of this, having the system of Kicklighter'841 and then given the teaching of well established teaching in art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Kicklighter'841, by providing sequencing mechanism of utilizing the sequence number to identify the state information, as taught by well established teaching in the art. The motivation to combine is to obtain the advantages/benefits taught by well established teaching in the art that such modification would ensure more reliable increase the recipient capability to identify, store, and performs commanded/instructed tasks synchronously.

Allowable Subject Matter

4. Claims 6,7,8,10,11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM
3/19/04

RICKY NGO
PRIMARY EXAMINER